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THE JOURNAL OF THE ALLENTOWN HOSPITAL is published each February, May, August, and November by the Staff and Trustees of the Allentown Hospital. Original papers are invited from all members of the Staff and will be reviewed for publication by the Editorial Committee. Papers submitted must be typewritten, double-spaced, on one side of the page only. Illustrations must be original drawings or black and white glossy photographs. References should be listed alphabetically and should conform to the QUARTERLY CUMULATIVE INDEX MEDICUS: author's name and initials, journal, volume, initial pages and year. Papers should be submitted to the chairman of the committee.

DISSEMINATED LUPOS ERYTHEMATOSIS

L. A. STAHL, M.D.

The purpose of this paper is not to attempt to add anything new to the body of knowledge already in print on this subject but to give notice of the author's suspicion that the disease is probably more common than is generally suspected. The author has seen three cases within the last two years that satisfy most of the diagnostic criteria.

All cases were seen in the Allentown Hospital. All were in young women; all had erythematous rashes; all had some splenic enlargement; all had fever; all had high sedimentation rates; all had lymph node enlargement; all had rheumatoid symptoms; all had leukopenia and neutropenia. Two cases were acute and fulminating, one chronic with acute exacerbations. One case died and two have survived as of the date of this paper. The fatal case was marked by severe hemolytic anemia.

Case Number One

L. R., a 32 year old white female, was admitted November 25, 1949 with severe hemolytic anemia, fever, some joint pain and enlarged spleen. On the body, mainly on the back and chest, were a few slightly raised, slightly scaly, erythematous patches. These had been previously diagnosed as chronic discoid lupus erythematosis. Two injections of a bismuth in oil preparation had been given by a dermatologist. One week after the last injection the patient complained of weakness and slight fever. Two weeks later the patient was hospitalized with the above symptoms. She did not respond to transfusions and antibiotics. She was transferred to the services of a well known hematologist in a metropolitan hospital. No improvement resulted and she was sent back with a diagnosis of disseminated lupus and acute hemolytic anemia of unknown etiology, and the thought that splenectomy might be beneficial.

The splenectomy was done and on the day of operation the patient broke out in a diffuse erythematous rash that covered the entire body. Cortisone not being available, artisone was obtained. For two days following the administration of the drug in 100 mg. doses every eight hours there was a definite remission of all symptoms. After this period

exacerbation occurred. Further treatment with artisone, transfusions, oxygen, antibiotics and other therapy was unsuccessful and the patient expired. Autopsy disclosed diffuse pneumonitis, pleural and pericardial lesions and renal lesions. The patient died February 14, 1950.

Case Number Two

R. J., white female aged 26, was first seen in 1948 as an office patient. The history was that since the birth of a child one year before she had a leukopenia. There were no other complaints. Total white count varied between 1600 and 2400, 24 to 40% polymorphoneculear neutrophil cells with a relative increase in large lymphocytes. She was referred to a large medical center for diagnosis and treatment. She was discharged three weeks later with a diagnosis of leukopenia of unknown etiology, probably congenital. Two days before discharge she underwent treatment in the gynecology service for cervical erosions.

Two days after discharge it was necessary to admit her to the Allentown Hospital with severe acute pelvic thrombophlebitis. She responded to antibiotic therapy. She was discharged in three weeks with no sequellae except bilateral edema of the lower extremities.

Four months later discrete, red, slightly elevated, painless lesions varying from 3 to 8 mm. in diameter and irregular in outline appeared on the face covering both cheeks and the upper part of the neck. The lesions appeared singly and healed in about six weeks leaving a whitish scar resembling that of variola. At this time irregular fever and joint pain made their appearance. Dyspnea and pleuritic pain were intermittently present. Weight loss was marked.

She was admitted to the hospital for ACTH therapy as soon as the drug became available. There was immediate improvement in all symptoms with initial dosages of 100 mgs. every eight hours. As the dose was diminished, however, the improvement could not be maintained. This was attributed to possible deterioration of the adrenal cortices in the earlier stages of the disease. Cortisone in doses of 100 mgs. daily was then given. Improvement was immediate and continued with abatement of all symptoms. The patient became ambulant and the white blood count rose to 4800 with a normal differential count. Anorexia abated and weight gain was steady. She was given up to the maximum amount of 6 gms cortisone. A six week rest period was begun during which symptoms originally noted gradually recurred.

Case Number Three

P. S., a 34 year old white female was seen in the Allentown Hospital in November 1950. The history revealed fever, joint pain and skin rash for two weeks prior to admission. Rash was scanty, erythematous, and on the face and anterior portions of the trunk. The joint involvement was confined to wrists and knees. ACTH therapy was begun with immediate and dramatic improvement. It was continued for several weeks after discharge by the family physician. To date this patient has continued in remission.

LABORATORY FINDINGS

I regret that L.E. cells were not demonstrated in any of these patients so that clinical, rather than laboratory diagnosis were made. Attempts were made to do laboratory diagnoses in the last two cases, the pathologist reporting suspicious, but not definitely confirmatory cells. No attempt was made to demonstrate the cells with patients plasma and normal marrow. The finding of L. E. cells is thought at the present time to definitely establish the diagnosis. The L.E. cell is a polymorphoneuclear leukocyte containing within it bits of vasophilic chromatin material. It has been difficult to demonstrate in marrow specimens and the later technique, using normal fresh marrow and mixing it with the patient's plasma, is said to greatly facilitate its definition.

SYMPTOMS

Disseminated lupus is one of the collagen diseases. It is thought that it is separate and distinct from the more common disease lupus erythematosis, yet several observers have reported an apparent relationship between the two diseases. There seems to have been some relationship in the first case reported here. It is varied in its manifestations, being at times acute and fulminating or chronic with exacerbations and remissions. The manifestations are many and varied. The rash is inconstant, seldom typically butterfly in type and may be late in making its appearance. It may vary somewhat in appearance, distribution and behavior. In one case these lesions were mainly on the face and neck and in one case became fulminant and purpuric following surgical operation. The fever is variable and often remittent. Joint pain is usual. This often tends to be remittent, tends to involve mainly the wrists, the ankles and the knees. Sedimentation rates usually are elevated and there is generally some reversal of the albumin

globulin ratio. Anemia is generally normocytic. There also are apt to be false positive Wasserman tests and a false positive complement fixation test. This is present in nearly one fourth of the cases. The urine often contains albumin, usually in small amounts.

Liebman-Sacks disease is a variant in which a non bacterial verrucous endocarditis is present. The differential diagnosis of lupus erythematosis takes in many diseases because of the variability of its symptoms. The paucity of findings in the early stages of the disease may suggest a psychoneurosis. Later the disease may be mistaken for rheumatoid arthritis, Felty' syndrome, rheumatic fever, subacute bacterial endocarditis, erythema nodosum, erythemea multiforme, brucellosis, tuberculous infections of one kind or another, sarcoidosis, lymphomas, aleukemic leukemia, et cetera. The finding of lupus erythematosis cells is thought to definitely establish the diagnosis. Klemperer in **Archives of Pathology** May 1930 reviewed a series of lupus erythematosis cases which he had seen for the last twenty years and was able to demonstrate the presence of the hemotoxylin stained bodies in the endocardium in seventy two out of seventy five of these cases. These bodies have been traced to alteration of the nuclei of the mesenchymal cells. These bodies have been found to contain partially depolymerized desoxyribose nucleic acid. This is thought to be due to enzymatic changes interfering with the metabolism of the desoxyribose nucleic acid. These bodies have also been found by Gross and Fox in the kidneys and lymph nodes.

TREATMENT

Treatment is symptomatic and at the present time may be said to be somewhat specific in that cortisone and ACTH have been found to be useful in many cases. There are many reports in the literature at the present time covering the treatment of lupus erythematosis with these drugs. All of the reports however point out that the use of the hormones is at best only a temporary means and at this time there have been no reports of cures of disseminated lupus following the use of these drugs.

It is very important that the patients shall not be exposed to sunlight or ultra violet light. In the first case that we discussed, it had evidently advanced very far before any hormones could be given. It is important that diagnosis be established as early as

possible in order to give the patient as much relief as possible. There is reason to believe that this disease can be controlled, even though it cannot be cured, by the use of the newer drugs.

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GIANT BENIGN PENETRATING DUODENAL ULCER INVADING KIDNEY

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R. E. BOVARD, M.D.

INTRODUCTION

Duodenal ulcers are most commonly found within 1-2 cm. of the pyloric ring. The diameter of the average ulcer does not exceed .5 cm. Penetrating ulcers, however, may reach several centimeters in diameter.

Ulcers found in the second portion of the duodenum are very uncommon, and those seen in the third and fourth portions are exceedingly rare. In one series of 158 cases reported only 5 per cent of duodenal ulcers were seen at a distance of greater than 5 cm. from the ampulla of Vater.

Perforating ulcers of the duodenum most commonly invade the pancreas. Next in frequency of involvement is the lesser omentum with transverse mesocolon, anterior abdominal wall, diaphragm and gall bladder being invaded in that order. In one case the inflammatory mass contiguous to the ulcer perforation involved the proximal portion of the gall bladder, common duct and the area adjacent to the capsule of the right kidney.

Twelve cases of giant benign duodenal ulcers have been reported in the literature. In a fairly comprehensive review of the literature, however, no case reports were noted in which the ulcer invaded the kidney.

The case to be presented is that of a large, penetrating ulcer involving the second and third portions of the duodenum with invasion of the cortex of the lower pole of the right kidney.

REPORT OF A CASE

This 45 year old, white male was first admitted to the Allentown Hospital on July 20, 1950 with the complaint of generalized progressive weakness which he first noted two months previous to admission. This weakness had become of such severity that any small exertion would so exhaust the patient that he would be forced to seek bed

rest. He had noted no pain, nausea, vomiting or disturbance of bowels except occasional bouts of diarrhea. Nor had he observed tarry stools or signs of gross blood.

In the history he stated that he had had "ulcers" for years. In 1949 he was a patient in another hospital following an episode of gross hemorrhage per rectum. At that time a positive diagnosis of gastric ulcer was made. He was treated medically, and since his discharge has had occasional loose stools but no tarry or bloody stools. There were no other significant findings in the past history. On the 19th of July, 1950, the day prior to admission, a blood study showed an RBC of 2,000,000 and a hemoglobin of 24 per cent.

The following positive findings were noted on physical examination: —Faint icteric tint to skin, scattered bilateral basilar rales in chest and moderate enlargement of the liver.

Significant laboratory findings on admission were: RBC 2.13 M (following 500 cc. of whole blood given on admission) HGB 48% (15.7 grams = 100%). X-ray examination of G. I. Tract was reported as being suspicious of pyloro-duodenal ulcer.

Treatment was directed to improvement of blood and nutritional status, and on August 7, 1950 after a total of 11 transfusions a blood study showed RBC of 4.47M and HGB 64%. At this time it was felt that a surgical exploration was indicated, and the patient was so advised. However, he refused to permit operation and left the hospital on August 9, 1950 after signing a release.

On December 22, 1950 the patient was re-admitted to the Allentown Hospital with the complaint of tarry stools, backache and severe substernal pain of two days duration.

Physical examination revealed a poorly nourished, white male in moderate distress. Blood pressure was 110/70; skin was very pale. The abdomen was somewhat firm, and an epigastric mass was noted. No other abnormal physical findings were observed.

Initial laboratory studies showed an RBC of 2,800,000; WBC 7,500; hemoglobin 54 per cent, Polys. 68 per cent and Lymphs. 32 per cent. Urinalysis showed 2 WBC per high power field.

X-ray examination of the lungs, lumbar spine and pelvis was reported negative for metastatic changes.

An electrocardiogram was reported normal.

The patient was again given numerous transfusions of whole blood, receiving a total of 12 in 12 days, at which time the blood picture

showed an RBC of 4,000,000 and hemoglobin of 64 per cent. Serum protein and plasma chlorides determination were 6.0 grams and 470 mg., respectively.

On the 13th hospital day an operation was performed. At the operation the liver was found to be enlarged 10 cm. below the costal border and was grossly cirrhotic. The stomach was enlarged and edematous throughout with the proximal half showing the greater edema. Along the lesser curvature at the cardiac end of the stomach was a perforated ulcer measuring 5 cm. in diameter. This perforated area was overlaid by the liver, and only a small leakage of contents into the abdominal cavity was present. The edges of this ulcer were indurated and thickened. There were no palpable nodes noted. The operation consisted of closure of the perforation.

The patient did fairly well following the operation until the sixth postoperative day when he suddenly began to perspire profusely and vomited a small amount of bright red blood. He was immediately given a transfusion of whole blood, but his blood pressure dropped to an imperceptible level, and he expired shortly thereafter.

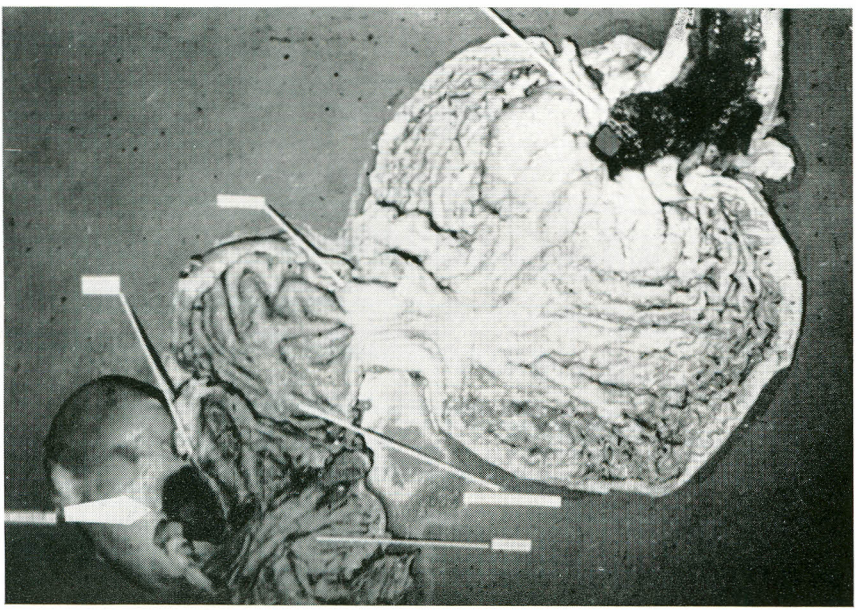
AUTOPSY FINDINGS

An autopsy examination, a midline upper abdominal incision with sutures in place was noted externally. Internally bilateral chronic adhesive pleurisy was present with a small amount of effusion in the left pleural cavity. Both lungs showed moderate passive congestion of the bases. There was 200 cc. of slightly turbid, pinkish-colored fluid present in the peritoneal cavity. The liver weighed 2910 grams. It had a nodular surface which was greyish-white in color. On section it showed a diffuse nutmeg mottling. Microscopic examination of the liver revealed a typical picture of Laennec's cirrhosis.

The capsule of the spleen was covered in one area with a necrotic, reddish-yellow, fibrinous exudate which stripped easily from the surface. There was a perforated gastric ulcer which was located along the lesser curvature of the stomach just distal to the esophago-gastric junction. The perforation was partially closed with cotton sutures leaving an opening 3 cm. in diameter. The stomach wall adjacent to this ulcer was edematous and showed beginning necrosis. The perforation extended into a cavity which was formed by the inferior border of the right lobe of the liver and the serosal surface of the stomach. Those portions of the liver and stomach serosa forming the cavity were covered with shaggy, fibrinous tags and were edematous and somewhat necrotic.

The gastric mucosa adjacent to the inferior border of the ulcer and extending a distance of 6 cm. distally along the posterior border of the lesser curvature was piled up by numerous thickened folds. Microscopic examination of this area showed an adenocarcinoma. The lumen of the esophagus adjacent to the ulcer was filled with dark brown, granular material resembling partially digested blood. A small amount of similar material was also present in the walled-off cavity formed by the liver and stomach.

The first portion of the duodenum was markedly dilated. A huge ulcer crater measuring 5 x 6 cm. in diameter and situated on the posterolateral wall of the second and third portions of the duodenum was seen. The superior border of this ulcer was 9½ cm. distal to the pyloric ring and 2 cm. distal to the ampulla of Vater. The inferior portion of the base of this ulcer had eroded into the anterior aspect of the lower pole of the right kidney (Fig. 1) and formed an elliptical area 2 x 3½ cm. in size which penetrated the capsule and cortex of the kidney. This ulcer had a punched-out appearance with a slight overhanging of the edges. The ulcer cavity and the adjacent lumen of the distal portion of the duodenum for a distance of 10 cm. were filled with clotted blood. The



Autopsy Specimen Showing Stomach, Duodenum and Involved Kidney. Arrow Points To Eroded Portion Of Kidney.

base of the ulcer was reddened and necrotic, and two small open vessels were seen in the upper part of the ulcer bed above that portion which had eroded into the kidney. About 2½ cm. distal to this ulcer another smaller ulcer was seen in the posterior wall of the third portion of the duodenum. This had a punched-out appearance and measured 1½ cm. in diameter. The duodenal mucosa adjacent to these ulcers showed moderate edema. The remainder of the intestinal tract was partially filled with dark, reddish-brown blood. Microscopic sections of the duodenal ulcers showed the usual findings of chronic peptic ulcers. The remainder of the autopsy was not remarkable.

SUMMARY

1. A case with a large, benign, penetrating ulcer involving the second and third portions of the duodenum with erosion into the cortex of the lower pole of the right kidney is presented. This ulcer was not diagnosed antemortem by either X-ray findings or clinical examination.

2. This case was complicated by a perforated carcinomatous ulcer of the stomach for which treatment was primarily directed.

3. Autopsy showed that hemorrhage from the duodenal ulcer was a major factor in the cause of death.

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THE USE OF TANTALUM WIRE MESH GAUZE IN THE REPAIR OF EXTERNAL HERNIA

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W. C. GRASLEY, M.D.

THE surgical treatment of external hernia is often difficult and complicated. This is attested to by the numerous types of anatomic repair and by the use of foreign materials when the anatomy of the patient does not permit satisfactory repair. In recent years the use of tantalum wire mesh gauze to bridge fascial defects or to strengthen weak fascial planes has been advocated.

The cases herein presented represent some further experience with the use of tantalum mesh in the repair of certain types of external hernia. This series of cases comes from the service of Dr. Clifford H. Trexler.

Tantalum is a rare metal having qualities similar to antimony and bismuth. Tantalum mesh gauze is soft, malleable and pliable. At the time of operation it may easily be patterned to fit any anatomic region. Experimental work has shown tantalum to be inert and for the most part well tolerated by the tissues. The incidence of tissue reaction is not greater than that produced by silk, cotton, or stainless steel wire. Examinations of tissues in which tantalum mesh has been embedded shows fibrous tissue to encircle the wire mesh and to permeate completely the many small openings in the mesh, so that a strong fibrous wall is obtained. It has been extremely difficult to separate the fibrous tissue from the mesh. After periods of time the mesh may break up, but this does not seem to alter the strength of the fibrous tissue formed. It is apparent that the strength of the repair is not due to the mesh itself, but to the fibrous tissue built up through and around it.

In some cases recorded it has been necessary to perform a second operation for conditions unrelated to the previous hernia or its repair. The tantalum mesh has not proved to be an obstacle when re-entering an abdomen, since the mesh is easily cut with a scissors.

In all of the following cases there was a complete and thorough isolation of the hernial sac and reduction of its contents. After proper reduction, the peritoneum was identified and the dense fascial ring of the defect outlined. Individual fascial layers were identified in the dissection whenever possible. In inguinal hernia, the basic principle of high ligation of the sac was adhered to.

The first case, S.G., was a moderately obese 39-year-old white male The diagnosis was right recurrent direct inguinal hernia. He had a history of three previous attempts at repair, each with prompt recurrence. He was operated upon by us on October 20, 1948. A modified Pfannensteil incision was made and the peritoneum opened longitudinally in the midline. Intra-peritoneal examination revealed a large direct hernial sac containing omentum. The sac extended into the scrotum. A right inguinal incision was then made with complete dissection and high ligation of the sac. The first incision was closed. The hernia was then repaired by the method of Halstead using interrupted cotton. Before closing the external oblique aponeurosis, the tantalum mesh gauze was molded to fit over the suture line and around the exit of the cord. The edges of the mesh were folded one-quarter inch and, with tantalum wire, the mesh was anchored by means of interrupted sutures to the pubic spine, Poupart's ligament and the conjoined tendon. The wound was closed without drainage and healed by first intention. The patient was last examined on November 13, 1950. There was no evidence of recurrence. The patient complained of persistent pain in the right testicle, almost to the point of a psychosis. However, he has had this same constant complaint since the first operation in 1945.

Case two, K.G., was a moderately obese white female, 58 years of age. She had a history of an incisional hernia since December 1948, following an upper right paramedian incision three months previous. Incisional herniorrhaphy was performed January 17, 1949. The defect in the fascia was closed in a perpendicular manner by approximating the edges of the fascial ring with interrupted cotton sutures. This suture line was overlaid with tantalum mesh gauze, the gauze extending approximately six centimeters all around the suture line. Tantalum wire was used for fixation of the mesh to the fascia. The wound was not drained. Beginning about the fourth postoperative day, a large hematoma developed. This was drained for the first time on the eighth postoperative day. A dark, brownish-red fluid drained profusely for five days and has continued to drain ever since. On her last examination, October 23, 1950, she presented no recurrence of the hernia, but there is a draining sinus five mm. in diameter which requires constant dressing. The sinus leads directly to the tantalum mesh. The patient has no subjective complaints and she does not want the gauze removed.

Case three, M.A., was a very obese white female age 52. She presented an incisional hernia, oblong in shape, in the upper abdomen,

measuring (in a flaccid abdominal state) 14 cm. in length and 12 cm. in width, with a large interstitial pouch inferiorly. Herniorrhaphy was performed February 11, 1949. The defect was closed longitudinally by approximating the edges of the fascial ring with interrupted No. 28 stainless steel wire sutures. The large interstitial pouch was drained with a Penrose drain emerging through a stab wound in a dependent area. The closure of the defect was overlaid with tantalum mesh, in this instance covering only four-fifths of the length of the closed defect. There was primary healing with an uneventful course. The drain was removed on the fourth postoperative day. The patient was last examined on May 26, 1950. The abdominal wall was firm and the patient had no subjective complaints.

Case four, L.F., an obese white female age 43, had an incisional hernia since 1940, following an upper right rectus incision. Herniorrhaphy was performed March 24, 1949. A transverse skin incision was made four cm. above the umbilicus directly over the defect. The incision led directly into the peritoneal cavity Interstitial pouches were found superiorly and inferiorly to the defect. These pouches contained adherent bowel and omentum. After reduction, the edges of the fascial ring surrounding the defect were approximated perpendicularly with a double row of continuous chromic catgut. A Penrose drain was placed in the lower interstitial pouch and brought out through a stab wound inferior to the hernial incision. The catgut suture line was covered generously with tantalum mesh. There was a primary wound healing. The drain was removed on the third postoperative day. The patient was examined May 2, 1950. The abdominal wall was firm and there were no subjective complaints.

Case five, J.M., was a 62-year-old white male with a pendulous abdomen. On December 12, 1947, he had had a strangulated right inguinal hernia repaired, using stainless steel wire sutures. There was a recurrence with re-operation on June 26, 1948, again using stainless steel wire sutures. The patient had a second recurrence and was again operated May 14, 1949. At this time he presented a direct hernia. This recurrence was repaired with interrupted cotton sutures. However, between the imbricated layers of external oblique aponeurosis a layer of tantalum mesh was placed. The cord was not transplanted. The wound healed uneventfully. The patient was last examined in October 1950. He presented a bulging area close to the right anterior superior spine, and another area just above the pubics. This was interpreted as a definite recurrence.

Case six, C.B., was an obese white male age 51. He presented an incisional hernia of several weeks duration in the right lower quadrant. He had had a right inguinal herniorrhaphy in 1947, and an appendectomy in 1931. Operation was performed June 4, 1949. An oblique inguinal incision was made and the hernial defect was found in the old right pararectus incision made for appendectomy in 1931. The defect was closed by approximating the edges of the fascial ring with interrupted cotton sutures. This closure was generously overlaid with tantalum mesh gauze. The wound was drained with a Penrose drain superficial to the tantalum mesh. Wound healing was uneventful. The drain was removed on the third postoperative day. The patient was last examined in June 1950, at which time the abdominal wall was firm and there were no subjective complaints.

Case seven, R.R., an obese white male age 48, had an incisional hernia since 1938, following a low right pararectus incision for appendectomy and for a right inguinal hernia. Operation was performed July 15, 1949. The incisional hernia had extended to become a direct inguinal hernia. A Halstead repair was performed using interrupted cotton sutures. A layer of tantalum mesh was placed superficial to the external oblique aponeurosis entirely around the cord at its exit. A drain was not used and the wound healed uneventfully. The patient was examined in August 1950. He has an asymptomatic repair.

Case eight, L.D., was a moderately obese white male age 65. He presented an incisional hernia in the upper abdominal wall. The defect was L-shaped, large, and of two years duration. Herniorrhaphy was performed October 19, 1950. The hernial defect was closed with three superimposed layers of catgut and then overlaid with an ample layer of tantalum mesh. Drainage of the wound was obtained by using two Penrose drains. These were removed on the sixth postoperative day. All drainage ceased before discharge November 2, 1950. The patient was examined December 1, 1950, with no abnormal findings.

The last case in this series was a 52-year-old white female, with a recurrent umbilical hernia. She had had a previous repair in 1930. Operation was performed December 6, 1950. The fascial ring of the defect was closed with interrupted cotton sutures and overlaid with tantalum mesh. The wound was drained by using a Penrose drain superficially. Healing was primary and the immediate result satisfactory.

Summary

The tantalum mesh used in all cases was size 50 x 50, 0.002 inch diameter. The edges of the mesh were folded in approximately one-quarter inch to prevent the retaining suture from pulling through. Tantalum wire size 30 was used to suture the mesh in position. At first interrupted sutures were used, but in the recent cases a continuous suture of tantalum wire has replaced the earlier technique. We believe that morbidity will decrease and better results will be obtained in direct proportion to the exactness with which the mesh is held in place. We have recently used individual sutures of tantalum to anchor the center of larger pieces of mesh to prevent buckling and ballooning of the tantalum gauze layer.

Drainage of the wound should always be considered and decided on the merits of the individual case. The use of a drain is frequently beneficial and imposes no additional wound morbidity Firm pressure on the wound by means of an ordinary many-tailed cotton binder from time of operation until discharge is often helpful.

In the repair of incisional hernia we have, whenever possible, followed the technic of Cattell, using non-absorbable suture and imbrication of layers, overlaying with tantalum mesh. All cases were allowed out-of-bed walking the first postoperative day.

We do not believe that tantalum mesh gauze is necessary in every hernial repair. However, it is of distinct value in that type of hernia where the fascial defect is large and approximation of the edges is difficult, and where the fascial layers are attenuated. The use of tantalum mesh gauze is a useful and valuable addition to the repair of complicated external hernia.

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RECENT THOUGHTS ON MULTIPLE SCLEROSIS AND REPORTS OF A CASE

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Foreword

It was only with a great deal of humility and trepidation that this subject was chosen. But very frequently the opthalmologist is the first one to recognize this disease and I felt it was the duty of my department to present it. I owe a great deal to my associates Doctors Hertz, Shoemaker, Muschlitz, Goldsmith and Beitel, and to the discussors, Doctors, Wenner, Kelchner, Stahl, Person, Gentile, Lindenfeld, and Sell for their aid.

Definition

Multiple Sclerosis is an acute or chronic, steadily progressive disease with or without remissions of unknown etiology, involving the white matter of the central nervous system, both the brain and spinal cord included.

Incidence

Most of the cases are between 20 and 40 years of age; the majority of these between 30 and 40; the ones under 30 are frequently undiagnosed or misdiagnosed; the ones over 40 dieing.

It has no predilection for race, color or creed. No valid seasonal or climatic or urban-rural variations have been found. The larger number of cases near medical centers are thought to be due to the superior diagnostic ability of the medical personnel.

The number of cases is estimated variously from fifty to several hundred thousand in this country, the variations being due to the lack of a centralized reporting agency. It must also be remembered that many of these cases are ambulatory and are treated in the office by the family physician. The life expectancy of a multiple sclerotic after the diagnosis has been made is about 12 years.

Pathology

Multiple sclerosis is a disseminated disease characterized by plaques scattered at various points in the white matter of the central nervous system and brain. Plaques have been found in the grey matter. The

plaques once formed are permanent and result in permanent disabilities at the time of the active part of the disease, when, the symptoms are at a maximum. This is followed by a quieting of the lesion and a remission of the symptoms.

Etiology

The exact cause is unknown. The following are recent thoughts on the subject.

1. There is a thrombosis of the venules in the nervous system. This has been produced experimentally in rabbits.
2. It has been reported that there is a relatively high incidence of arteriolar spasm with accompanying scotomas.
3. There is some evidence to support the theory that patients afflicted with multiple sclerosis are allergic. Many have positive skin tests.
4. Most persons with multiple sclerosis have an emotional instability. Many patients later developing multiple sclerosis have had an initial drag of hysteria.
5. The precipitating factors in an attack are frequently found to be chilling, fatigue, and an emotional upset.

Signs and Symptoms

Cruveilhier first described the disease over 100 years ago. Charcot in 1863 described the "Charcot triad" of intention tremor, Nystagmus, and scanning speech. The generalized symptoms and signs are many and varied, the lesions attacking any part of the nervous system. To enumerate the more common:

1. Numbness and tingling sensation in fingers and toes
2. Lack of emotional control
3. Irritability (mental)
4. Mental deterioration
5. Intention tremors
6. Ataxic or spastic gait
7. Absent abdominal reflexes
8. Scanning speech, hyperactive knee and ankle jerks
9. Positive Babinski
10. Urinary difficulties (incontinence)

Ophthalmological Findings

1. Blurring of vision in either one or both eyes. This is due to the lesions in the optic nerves, chiasma and tracts. The lesions resulting in visual field defects are either central or para central, resulting in severe to very little loss in vision. In the severe form, the field changes are those of acute retrobulbar neuritis. Characteristically there is a variable and fluctuating course of the defects in respect to position shape, extent and intensity. The initial dense scotoma occurs in the stage of the disease of congestion and swelling; the recovery, during the stage of resolution and plaque formation. A lesion in the optic chiasma causes a quadrant defect in the visual field. Lesions in the optic tract cause homonymous hemianopic field defects.
2. Pupillary changes such as hippus occur at times in Multiple Sclerosis. They are rhythmic, irregular oscillations of the pupil, deliberate in time and of considerable excursion.
3. Lesions affecting the pathways by which the various ocular nuclei are linked together prevent the coordination of the nuclei in producing conjugate movements of the eye. Such a lesion results in diplopia.
4. Irregular spasmotic eye movements are rare. A muscle suddenly goes into spasm causing the eye to turn in the direction of action of that muscle.
5. Nystagmus is found in about 70% of cases. It is usually of a fine horizontal type and in its early stages may be elicited by having the patient look in the extreme positions of gaze.
6. Occular palsies are common in Multiple Sclerosis. They occur in 25% to 35% of cases. Many of the palsies are fleeting in character causing attacks of temporary diplopia. These attacks often appear before permanent symptoms appear and a diagnosis has been made. Ptosis is rare. Paralysis of any of the muscles, either one or in combination, may occur.
7. Oculogyric crises may occur. This is a tonic spasmodic deviation of the eyes usually upwards, but it may be in any direction.
8. The optic tracts may be affected. A sudden and usually unexplicable hemianopsia or quadrantic defect, frequently scotomatous sometimes peripheral and occasionally involving central vision, occuring typically in a young woman, and rapidly clearing up partially or completely, should suggest Multiple Sclerosis.
9. Pupillary changes are not common. It usually takes the form of paralysis. The resulting pupil is usually miotic.
10. A supranuclear palsy is infrequent. When it does occur the eyes are deviated to the side of the lesion.

Diagnosis is made on the following characteristics.

1. Onset between 12 and 50 years of age.

2. Dissemination of the lesions—implication of the pyramidal tracts, exaggerated tendon reflexes, loss or impairment of abdominal reflexes, positive Babinski, disturbances of cerebellar function including nystagmus, involvement of the dorsal columns, and impairment of vision.
3. Dissemination of the lesions in time.
4. Generally increasing disability.
5. Absence of evidence of lues.
6. Changes in the colloidal gold curve.

Differential Diagnosis

Multiple Sclerosis must not be confused with:

1. Acute disseminated encephalomyelitis;
2. Disseminated myelitis;
3. Diffuse sclerosis;
4. Hysteria;
5. Neuro-syphilis;
6. Amyotrophic lateral sclerosis;
7. Spinal cord tumor.

Laboratory Tests

Studies have shown that the gamma globulin of the spinal fluid is increased in many cases of Multiple Sclerosis. It was also found that the common findings in a typical Multiple Sclerotic spinal fluid are:

1. A clear, colorless fluid;
2. Normal or slightly increased mononuclear cell count;
3. Normal or slightly increased spinal fluid protein;
4. A type D colloidal gold curve. This is apparently the most important test.

Treatment

Most every medication known has been tried on cases of Multiple Sclerosis. Most of them have been discarded or are used only as a plain hope. Among those most recently used are:

1. Daily injections of histamine which have become popular;
2. Sympatholytic and adrenolytic compounds such as tetra-ethyl ammonium chloride;
3. The anticoagulants such as dicumerol;
4. Circulatory stimulants such as Ephedrine, caffeine, etc.;
5. Vitamins—especially Thiamine Hydrochloride;
6. Fever therapy;
7. Neostigmine.

REPORT OF A CASE

Mrs. C. Z., a 19-year-old secretary, came to the office Jan. 2, 1948, complaining of progressive blurring of vision in each eye for the past week. She had had no pain, no knowledge of any eye injury, had not seen red in front of her eyes, and had no congestions of the lids or globes.

The past eye history revealed she had worn glasses for some years because of nearsightedness. There was no history of diplopia. She reported no headaches. She had not been ill recently, but was at this time about three months pregnant.

Eye examination revealed:

Vision: O.D. without glasses-count fingers with glasses-count fingers
O.S. without glasses-hand movements with glasses-hand movements.

The structures surrounding the eyes were normal. The lids revealed no ptosis. The movements of the globes in the six cardinal directions were perfectly normal. Pupils were equal and reacted to light and accommodation.

The media was clear; discs oval, well defined, good color; no hemorrhages or exudates were seen in the macula or periphery.

The diagnosis: retrobulbar neuritis with possible Multiple Sclerosis. She was sent to the Allentown Hospital.

HOSPITAL REPORT

The patient's chief complaint was blind spots in both eyes. She stated that these blind spots began in the right eye and later went to the left eye. They were thought to have originated from an infected tooth but extraction did not help the condition. The past history included attacks of scarletina, chicken pox and whooping cough. She had frequent nose bleeds as a child and reported pain in the knees on one occasion. There was no other rheumatic history. Her menstrual periods were regular except the last which she missed.

The physical examination revealed a 19-year-old female in no distress and was negative except that the abdominal reflexes were questionable.

A neurological consultation on January 16, 1948 revealed the following: superficial and deep sensitivity were unimpaired; there was a right-central facial weakness but no other cranial nerve changes;

of the superficial reflexes, the epigastric was markedly diminished on the left; the abdominal reflex was absent on the left; the deep reflexes were active and equal; there was a suggestive positive Babinski on the left, but it was questionable on the right; the Hoffman, Oppenheimer, etc. were negative; coordination, station and gait were unimpaired. There was no speech disturbance. Conclusion: While the above findings were minimal, they were nevertheless compatible with a diagnosis of Multiple Sclerosis. The onset of symptoms coinciding with pregnancy was also suggestive. Spinal fluid studies were recommended.

The laboratory findings on Jan. 1, 1948 included a urinalysis which was negative and a blood count revealing the following: hemoglobin 80%; R.B.C. 4,680,000; W.B.C. 13,000; Poly. % 92; Lym. % 8; M&T % 0, EOS. % 0; BASO. % 0. On January 6, 1948 the W.B.C. was 11,400; the differential was as follows: Poly. % 68; Lym. % 27; M&T % 3; EOS. % 2; BASO. % 0. The blood serology was reported on January 7 as a negative Wasserman, Kahn and Mazzini. On January 8, the Friedman test was positive.

A spinal fluid examination was done on January 20, revealing a clear, colorless fluid with a protein of 68; chlorides of 900; 15 cells per cc. with 20% ploys. and 80% lymph. The Wasserman and the colloidal gold were negative.

The sedimentation rate was normal.

The X-ray report was as follows: X-Ray examination of the sinuses shows frontals, ethmoids, antra and sphenoids normal. X-ray examination of the teeth: With the exception of lateral incisor in the left upper jaw which shows poor root definition, we fail to find any other X-ray evidence of abscess or pathological changes.

TREATMENT

During the patient's stay in the hospital the medication consisted mainly of foreign protein therapy. Aolin was at first used, followed by typhoid vaccine intravenously. Five injections were given.

On January 24 she was discharged. The final diagnosis was retrobulbar neuritus, Multiple Sclerosis.

The patient was seen at the office on the following dates:

2-10-48 best vision obtainable O.D. 20/50 O.S. 20/70
2-17-48 best vision obtainable O.D. 20/50 O.S. 20/30

3- 2-48 best vision obtainable O.D. 20/50 O.S. 20/30
3-30-48 best vision obtainable O.D. 20/30 O.S. 20/30+
4-27-48 best vision obtainable O.S. 20/25 O.S. 20/30
Her refractive error O.D.—500 + 75 cx 80
O.S.— 550 + 250 cx 80

The visual fields were taken at appropriate intervals. When first seen 1-2-48, there was a large central absolute scotoma in each eye. This gradually got smaller until it became a relative scotoma and finally disappeared.

Mrs. C. Z. had her baby uneventfully. She had no more difficulties until she was seen at the office 1-17-50 complaining of blurring in the right eye.
Best vision: O.D. 20/70–2
O.S. 20/30

The pupils were dilated and there is now a temporal pallor of each disc. Visual fields showed a small central scotoma right eye. She was sent to Dr. C.P.S. who gave her foreign protein and histamine. Her vision on 2-11-50 O.D. 20/30 O.S. 20/30

I did not see her until 9-26-50 when she complained of the left eye being blurred for a few days.
Best vision: O.D. 20/30+ O.S. 20/50

Again a relative scotoma was found and this time in addition, a nystagmus, of a fine horizontal type was evident. Her family doctor C.P.S. gave her supportive treatment and she gradually recovered. The vision being on 11-4-50 O.D. 20/30– O.S. 20/25–

The nystagmus had for all practical purposes disappeared.

Conclusions

1. Multiple Sclerosis is more prevalent than one would expect.
2. The opthalmologist is often the first consulted by patients.
3. The etiological factor is not yet known.
4. The course of the disease is usually slow but certain with exacerbations and remissions.
5. There is no specific treatment.
6. Death usually results in 10 to 15 years.